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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/765,644	01/22/2001	Michael Eisenbach-schwartz	EIS-SCHWARTZ=13B	6853

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EXAMINER	
BUNNER, BRIDGET E	

ART UNIT	PAPER NUMBER
1647	

DATE MAILED: 03/04/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/765,644	EISENBACH-SCHWARTZ ET AL.	
	Examiner	Art Unit	
	Bridget E. Bunner	1647	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *23 September 2003*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *43-93* is/are pending in the application.

4a) Of the above claim(s) *45, 50-54, 57-60, 64, 70-78, 84-87, 90-93* is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *43-44, 46-49, 55-56, 61-63, 65-69, 79-83, 88-89* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☒ Claim(s) *43-93* are subject to restriction and/or election requirement.

Application Papers

9)☒ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Status of Application, Amendments and/or Claims

The amendment of 23 September 2003 has been entered in full. Claims 1-42 are cancelled and claims 43-93 are added.

The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

Newly submitted claims 45, 50-54, 57-60, 64, 70-78, 84-87, 90-93 are directed to an invention that is independent or distinct from the invention originally claimed for the following reasons: The claims are basically drawn to a method of causing activated T cells to accumulate at the site of neuronal degeneration by administering an effective amount of activated T cells that have been activated by Copolymer 1 or a Copolymer 1-related peptide. The newly submitted claims also recite that an individual is suffering from a disease that has caused primary neuronal damage. However, the elected invention recites the administration of Copolymer 1 (02 January 2003). Cop 1, injury, spinal cord injury, and ala glu lys tyr were elected as species (02 January 2003).

Since applicant has received an action on the merits for the originally presented invention, this invention has been constructively elected by original presentation for prosecution on the merits. Accordingly, claims 45, 50-54, 57-60, 64, 70-78, 84-87, 90-93 are withdrawn from consideration as being directed to a non-elected invention. See 37 CFR 1.142(b) and MPEP § 821.03.

Applicant's continued traversal of the Restriction requirement set forth in the communication of 01 October 2002 appears moot since the restriction requirement was made

final in the Office Action of 23 April 2003. If Applicant wishes to pursue the matter further, a petition should be filed in accordance with 37 CFR 1.144.

Claims 43-44, 46-49, 55-56, 61-63, 65-69, 79-83, 88-89 are under consideration in the instant application as they read upon the elected invention of administering a Cop 1 or Cop 1 related polypeptide, as they read upon the elected species of Cop 1, injury, spinal cord injury, and a 4 different amino acid copolymer (alanine, glutamic acid, lysine, and tyrosine).

Withdrawn Objections and/or Rejections

1. The objections to the specification at pg 4 of the previous Office Action (23 April 2003) are *withdrawn in part* in view of the amended specification (23 September 2003). See section on Specification, below.

2. The objection to claims 1, 6-7, 9-12, 19-20, 22, 27-28, 30-33, and 40-42 for reciting non-elected species at pg 4 of the previous Office Action (23 April 2003) is *withdrawn* in view of the cancelled claims (23 September 2003).

3. The rejection of claims 1, 6-7, 9-13, 19-20, 22, 27-28, 30-34, and 40-42 under 35 U.S.C. § 112, second paragraph at pg 9 of the previous Office Action (23 April 2003) are *withdrawn* in view of the cancelled claims. See section on 35 U.S.C. § 112, second paragraph, below.

Specification

4. The objection to the disclosure regarding a suggested title change is maintained and held in abeyance until all other issues are resolved.

Double Patenting

5. Claims 43, 55-56, 79, and 82-83 are provisionally rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 47, 51-52, 55,

and 59-60 of copending Application No. 09/314,161. Although the conflicting claims are not identical, they are not patentably distinct from each other. The claims of the '161 application and the instant application recite a method of causing T cells activated against a nervous system (NS)-specific antigen to accumulate at the site of neuronal degeneration in an individual in need. The recitation of reducing neuronal degeneration caused by neurodegenerative effects of disease, ameliorating the effects of an injury or disease that causes neuronal degeneration, and reducing neuronal degeneration in the central nervous system or peripheral nervous system in the preamble of the claims from the instant application and the '161 application is interpreted as an intended use and bears no accorded patentable weight. Therefore, the instant claims of a method of causing T cells activated against a Cop 1 (a NS-specific antigen) to accumulate at the site of neuronal degeneration is not patentably distinct over the co-pending claim in Application No. 09/314,161.

This is a provisional obviousness-type double patenting rejection because the conflicting claims have not in fact been patented.

6. Claims 43-44, 46-49, 61-63, 65-69, 79, 81, and 88-89 are provisionally rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 8, 11-14, 25, 31, 33-37, 47, 49, 51, and 60-61 of copending Application No. 09/765,301. Although the conflicting claims are not identical, they are not patentably distinct from each other. The claims of the '301 application and the instant application recite a method of causing T cells activated by Copolymer 1 to accumulate at the site of neuronal degeneration in an individual in need. The recitation of reducing neuronal degeneration caused by

neurodegenerative effects of disease, ameliorating the effects of an injury or disease that causes neuronal degeneration, and reducing neuronal degeneration in the central nervous system or peripheral nervous system in the preamble of the claims from the instant application and the '301 application is interpreted as an intended use and bears no accorded patentable weight. Therefore, the instant claims of a method of causing T cells activated by Copolymer 1 to accumulate at the site of neuronal degeneration is not patentably distinct over the co-pending claims in Application No. 09/765, 301.

This is a provisional obviousness-type double patenting rejection because the conflicting claims have not in fact been patented.

7. Claims 43, 55-56, 79, 80, 82-83 are provisionally rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 45, 49-50, 53, 57-58 of copending Application No. 09/893,348. Although the conflicting claims are not identical, they are not patentably distinct from each other. The claims of the '348 application and the instant application recite a method of causing T cells activated by Copolymer 1 to accumulate at the site of neuronal degeneration in an individual in need. The recitation of reducing neuronal degeneration caused by neurodegenerative effects of disease, ameliorating the effects of an injury or disease that causes neuronal degeneration, and reducing neuronal degeneration in the central nervous system or peripheral nervous system in the preamble of the claims from the instant application and the '348 application is interpreted as an intended use and bears no accorded patentable weight. Therefore, the instant claims of a method of causing T

cells activated by Copolymer 1 to accumulate at the site of neuronal degeneration is not patentably distinct over the co-pending claims in Application No. 09/893,348.

This is a provisional obviousness-type double patenting rejection because the conflicting claims have not in fact been patented.

Claim Rejections - 35 USC § 112

8. Claims 43-44, 46-49, 55-56, 61-63, 65-69, 79-83, 88-89 are rejected under 35 U.S.C. 112, first paragraph, because the specification, while being enabling for a method of reducing secondary neuronal degeneration in the central nervous system (CNS) to ameliorate the degenerative effects of crush-injured CNS nerve comprising administering to an individual in need thereof a composition consisting of Copolymer 1 wherein the Copolymer 1 reduces secondary neuronal degeneration, does not reasonably provide enablement for a method for reducing neuronal degeneration caused by the neurodegenerative effects of disease, or for reducing secondary neuronal degeneration that follows the primary neuronal damage of an injury in the central or peripheral nervous system of an individual in need thereof comprising causing T cells activated by copolymer 1 to accumulate at the site of neuronal degeneration. The specification does not enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the invention commensurate in scope with these claims. The basis for this rejection is set forth for claims 1, 6-7, 9-13, 19-20, 22, 27-28, 30-34, and 40-42 at pg 4-9 of the previous Office Action.

The claims are also recite that Copolymer 1 is a random copolymer that cross-reacts functionally with myelin basic protein (MBP) and is capable of competing with MBP on the MHC class II molecule in antigen presentation. The claims recite that Copolymer 1 (Cop 1) is

administered in a manner that promotes active immunization of the individual so as to build up a critical T cell response. The claims recite that the random copolymer consists of four different amino acids: alanine, glutamic acid, lysine, and tyrosine. The claims also recite that the injury is spinal cord injury and that the injury is other than autoimmune disease.

Applicant's arguments (23 September 2003), as they pertain to the rejections have been fully considered but are not deemed to be persuasive for the following reasons.

(i) Applicant indicates that Prof. Schwartz made a comprehensive presentation (interview of 26 June 2003) explaining the many successful experiments that have been undertaken in the laboratory to show the broad applicability of the technology involved with the present invention. Applicant argues that while much of the background and most the experiments dealt with T cells activated against Cop 1, some of it deals with other activated T cells. Applicant states that that which is now known about this technology allows one of ordinary skill in the art to understand that the predictions made in the present application would be expected to be accurate.

Applicant's arguments have been fully considered but are not found to be persuasive. As discussed in the previous Office Action, the specification of the instant application does not teach any methods or working examples that indicate a reduction of "primary" neuronal degeneration in central nervous system or peripheral nervous system by administration of Cop 1 to an individual. It is well known in this unpredictable art that regeneration does not occur in the CNS either because processes fail to grow the necessary distance, they are in competition with other nearby neuronal processes not derived from the affected nerve, astrocytic scarring blocks axonal elongation, or because of misdirected axonal growth (e.g., see Jackowski, Brit J Neurosurgery 9: 303-317, 1995; specifically pgs. 309-310 and pg. 305, last ¶). Accordingly,

because of the lack of guidance provided by the specification as to how one can rescue dead or dying cells instantaneously affected, for example, by a head injury, there is no nexus that merely administering Cop 1 to an individual in need thereof can reasonably be extrapolated to successfully treat any human subject experiencing *"primary"* neuronal degeneration, as claimed, without undue experimentation to determine such. The examples in the specification of the instant application only indicate that administration of Cop 1 reduces *secondary* neuronal degeneration caused by crush-injured CNS nerve (see pg 67-68 and 84-85).

Additionally, the specification teaches that Cop 1 may be used to inhibit secondary degeneration which may otherwise follow primary nervous system injury, e.g., closed head injuries and blunt trauma (pg 44, ¶ 2). However, this is not adequate guidance, but is merely an invitation to the artisan to use the current invention as a starting point for further experimentation. The specification only teaches that rats vaccinated with Cop 1 in IFA show evidence of protection of optic nerve fibers from secondary degeneration compared to that in control rats injected with PBS in IFA (pg 68, lines 2-6; Figure 3). Therefore, undue experimentation would be required of the skilled artisan to determine the optimal dosage, duration, and route of administration of Cop 1 to reduce the neuronal degeneration caused by all possible injuries. The scope of the claims also encompasses injuries not expected to be commensurate with crush injury, such as gunshot wounds, damages caused by surgery, blunt trauma, spinal cord injury, and closed head injuries (pg 44, ¶ 2). The effects encompassed by these injuries are broad and may include for example, paralysis, blurred vision, blindness, pain, sensory deficits, memory loss, cognitive deficits, and behavioral changes, which effects are not commensurate with crush injury. The etiology and pathology of crush injury is largely dissimilar

from other injuries (particularly of the CNS) and the skilled artisan would not be able to predict that administration of Cop 1 would be beneficial for all possible injuries.

Furthermore, the specification does not teach any methods or working examples that indicate T cells activated by Cop 1 accumulate at the site of neuronal degeneration in an individual after administration of the Cop 1 protein. Undue experimentation would be required of the skilled artisan to determine if T cells accumulate at the site of neuronal degeneration after administration of Cop 1 and to test the T cells *in vivo* or *ex vivo* to determine if they are specific for Cop 1. Such trial and error experimentation is considered undue.

(ii) Applicant indicates that there are numerous references that relate to the present invention and reviews the results of several of them. Applicant argues that these papers establish for the record what Prof. Schwartz was able to explain at the interview of 26 June 2003. Applicant submits that in light of all the experiments that have been done with respect to this invention, the full scope of the present would be expected to be operable. Applicant asserts that there is no reason to believe that undue experimentation would be involved in order to make and use the full scope of the present invention.

Applicant's arguments have been fully considered but are not found to be persuasive. Any references which the Applicant wishes for the Examiner to review and make of record should be supplied in the form of an Information Disclosure Statement pursuant to 37 C.F.R. § 1.98(a)(1) which requires a list of all patents, publications, or other information submitted for consideration by the Office. The list of references has been placed in the application file, but the information referred to therein has not been considered. Submission of the proper PTO-

1449 form with copies of the references listed therein will be taken into due consideration by the Examiner. It is noted that the Examiner has previously considered a few of the references listed in the response of 27 August 2003 (for example, Moalem et al. (Nat Med 5(1): 49-55, 1999), Moalem et al. (J Neuroimmunol 106 : 189-197, 2000), Hauben et al. (Lancet 354 : 286-287, 2000), Hauben et al. (PNAS USA 98: 15173-15178, 2001, Hauben et al. J. Neurosci 20: 6421-6430, 2000). However, only the elected invention is being examined at this time. Until the elected invention is deemed allowable, the references are not pertinent. The references will be considered when allowable subject matter relevant to the elected invention is identified.

Proper analysis of the Wands factors was provided in the previous Office Action. Due to the large quantity of experimentation necessary to reduce primary neuronal degeneration in CNS, to reduce neuronal degeneration caused by all possible injuries, to determine whether or not T cells activated against Cop 1 accumulate at the site of neuronal degeneration and treat all possible neurodegenerative injuries, the lack of direction/guidance presented in the specification regarding the same, the absence of working examples directed to the same, the complex nature of the invention, and the unpredictability of the effects of Cop 1 administration on all possible injuries and on T cell accumulation, undue experimentation would be required of the skilled artisan to make and/or use the claimed invention in its full scope.

35 USC § 112, second paragraph

9. Claims 43-44, 46-49, 55-56, 61, 79-83 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

10. Claims 43-44, 46-49, 55-56, 61, 79-83 are rejected under 35 U.S.C. 112, second paragraph, as being incomplete for omitting essential steps, such omission amounting to a gap between the steps. See MPEP § 2172.01. The omitted steps are: the administration of Cop 1. The basis for this rejection is set forth at pg 9 of the previous Office Action (23 April 2003).

Applicant's arguments (23 September 2003), as they pertain to the rejections have been fully considered but are not deemed to be persuasive for the following reasons.

At page 24-25 of the Response, Applicant argues that one does not look to the claims to find out how to practice the invention they define, but to the specification. Applicant also argues that no essential step is omitted, as the only essential step is causing the T cells to accumulate at the site of neuronal degeneration. Applicant argues that the administration of NS-specific activated T cells is not essential step for causing T cells to accumulate at the site of injury. Applicant indicates that claim 75, which specifies that activated T cells are administered does not add a step to claim 43, but further defines the causing step.

Specifically, Applicant's arguments have been fully considered but are not found to be persuasive because it is inappropriate to read limitations in the specification into the claims. The claims must independently define the invention for which patent protection is sought. Therefore, the claims are still rejected as being indefinite because the claims do not recite a step which causes the Cop 1 activated T cells to accumulate at the site of neuronal degeneration. It is noted to Applicant that the claims have been examined to the extent that they read upon the elected group of administration of Cop 1 (and not the administration of Cop 1 activated T cells).

Conclusion

No claims are allowable.

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Bridget E. Bunner whose telephone number is (571) 272-0881. The examiner can normally be reached on 8:30-4:30 M-F.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Gary Kunz can be reached on (571) 272-0887. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Elizabeth C. Kemmerer

BEB
Art Unit 1647
01 March 2004

ELIZABETH KEMMERER
PRIMARY EXAMINER